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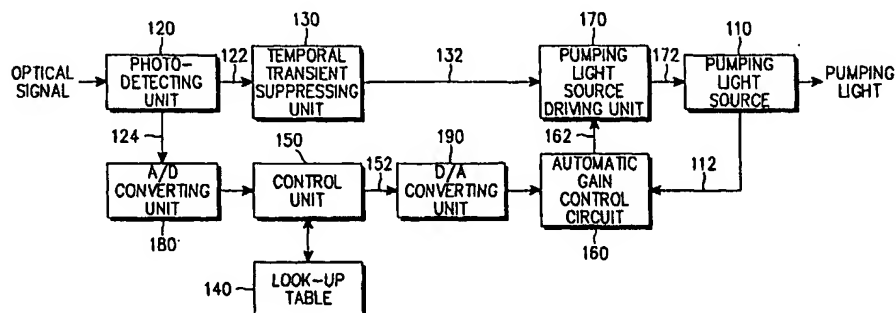
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### (54) Gain control device and method for erbium doped fiber amplifier

(57) A gain control device and method for an erbium doped fiber amplifier, which is suitable for a wavelength division multiplexing system while being capable of coping with diverse intensities of optical signals. The gain control device includes a pumping light source for outputting pumping light adapted to excite erbium ions for amplification of an input optical signal while outputting a pumping light sensing signal indicative of the power of the pumping light, a photo-detecting unit for outputting an input light sensing signal indicative of the power of the input optical signal, a control unit for reading out, from a look-up table, a reference power corresponding

to the optical signal power indicated by the input light sensing signal, and outputting a reference signal indicative of the read-out reference power, an automatic gain control circuit for conducting a comparison between the reference power and the pumping light power, based on the pumping light sensing signal and the reference signal, and outputting a power compensating signal adapted to compensate for a difference between the reference power and the pumping light power, and a pumping light source driving unit for controlling the level of a bias current supplied to the pumping light source, based on the power compensating signal.

FIG. 1



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